



Florida Department of Transportation

CHARLIE CRIST
GOVERNOR

605 Suwannee Street
Tallahassee, FL 32399-0450

STEPHANIE KOPELOUSOS
SECRETARY

December 16, 2010

Monica Gourdine
Program Operations Engineer
Federal Highway Administration
545 John Knox Road, Suite 200
Tallahassee, Florida 32303

Re: Office of Design, Specifications
Section **971**
Proposed Specification: **9710403 Traffic Marking Materials – Physical Requirements.**

Dear Ms. Gourdine:

We are submitting, for your approval, two copies of the above referenced Supplemental Specification.

These changes were proposed by. Chester Henson of the State Roadway Design Office to change test methods from Federal to ASTM methods.

Please review and transmit your comments, if any, within two weeks. Comments should be sent via email to SP965RP or rudy.powell@dot.state.fl.us.

If you have any questions relating to this specification change, please call Rudy Powell, State Specifications Engineer at 414-4280.

Sincerely,

Rudy Powell, Jr., P.E.
State Specifications Engineer

RP/cah

Attachment

cc: Gregory Jones, Chief Civil Litigation
Florida Transportation Builders' Assoc.
State Construction Engineer

TRAFFIC MARKING MATERIALS.**(REV 121-224-10)**

SUBARTICLE 971-4.3 (of the Supplemental Specification) is deleted and the following substituted:

971-4.3 Physical Requirements: The material shall meet the following criteria:

Property	Test Method	Minimum	Maximum
Density	ASTM D 1475	13.5 ± 0.37 lb/gal	N/A
Consistency <i>Viscosity</i> at 170°F	ASTM D 562	80 KU	100 KU
Fineness of Grind	ASTM D 1210	2 (HS)	3(HS)
Dry Opacity at 5 mils WFT	Fed Std 141a Method 4121 <i>ASTM D 2805</i>	0.96	-
Bleed Ratio	Fed Spec TT P 85D <i>ASTM D 969</i>	0.95	-
Flexibility	Fed Spec TT P 115D <i>ASTM D 522 Method B</i>	Pass	-
Abrasion Resistance	971-4.3.2	Pass	-

971-4.3.1 Set To Bear Traffic Time: The material shall set to bear traffic in not more than two minutes.

971-4.3.2 Abrasion Resistance: Test four samples per LOT using a Taber Abrader. The paint shall be applied to specimen plates using a drawdown blade having a clearance of 26 mils. Air dry each sample for 30 minutes and bake at 220°F for 18 hours. Clean with a soft brush and weigh each sample. Abrade samples for 1,000 cycles with 1.1 lb weights and CS-10 wheels. Clean the samples with a soft brush and weigh again. The average weight loss for the four plates shall not exceed 0.178 oz per plate.

971-4.3.3 Retroreflectivity: The white and yellow pavement markings shall attain an initial retroreflectance of not less than 300 mcd/lx·m² and 250 mcd/lx·m², respectively. The retroreflectance of the white and yellow pavement markings at the end of the six month service life shall not be less than 150 mcd/lx·m².

SUBARTICLE 971-6.4 (of the Supplemental Specification) is deleted and the following substituted:

971-6.4 Color: Materials shall meet the performance requirements specified in 971-1 and the following additional requirements. The initial luminance factor, Cap Y, shall not be less than 55. ~~The in-service luminance factor at the end of the three year service life shall not be less than 35 when measured outside the wheel paths.~~

SUBARTICLE 971-8.3 (of the Supplemental Specification) is deleted and the following substituted:

971-8.3 Physical Requirements: The material shall meet the following criteria:

Property	Test Method	Minimum	Maximum
Adhesion to Concrete	ASTM D 4541, <i>ASTM D 7234</i> <i>or ACI 503</i>	Concrete Failure	-
Hardness	ASTM D 2240	75	-
Abrasion Resistance	971-8.3.2	Pass	-

971-8.3.1 Set To Bear Traffic Time: The material shall set to bear traffic in not more than two minutes.

971-8.3.2 Abrasion Resistance: Test four samples per LOT using a Taber Abrader. The material shall be applied to specimen plates using a drawdown blade having a clearance of 26 mils. Air dry each sample for 30 minutes and bake at 220°F for 18 hours. Clean with a soft brush and weigh each sample. Abrade samples for 1,000 cycles with 500 g weights and CS-10 wheels. Clean the samples with a soft brush and weigh again. The average weight loss for the four plates shall not exceed 50 mg per plate.

971-8.3.3 Retroreflectivity: The white and yellow pavement markings shall attain an initial retroreflectance of not less than 450 mcd/lx·m² and not less than 350 mcd/lx·m², respectively. The retroreflectance of the white and yellow pavement markings at the end of the three year service life shall not be less than 150 mcd/lx·m².

SUBARTICLE 971-10.2 (of the Supplemental Specification) is deleted and the following substituted:

971-10.2 Composition:

Component	Test Method	White	Yellow
Binder		20.0% minimum	20.0% minimum
TiO ₂ , Type II Rutile	ASTM D 476	10.0% minimum	N/A
Reflective Elements (intermix)	ASTM D 1155 <i>AASHTO T 250</i>	% minimum per manufacturer	% minimum per manufacturer
Yellow Pigment		N/A	% minimum per manufacturer
Calcium Carbonate and Inert Filler (-200 mesh sieve)		% minimum per manufacturer	% minimum per manufacturer

Percentages are by weight.

TRAFFIC MARKING MATERIALS.**(REV 12-22-10)**

SUBARTICLE 971-4.3 (of the Supplemental Specification) is deleted and the following substituted:

971-4.3 Physical Requirements: The material shall meet the following criteria:

Property	Test Method	Minimum	Maximum
Density	ASTM D 1475	13.5 ± 0.37 lb/gal	N/A
Viscosity at 77°F	ASTM D 562	80 KU	100 KU
Fineness of Grind	ASTM D 1210	2 (HS)	3(HS)
Dry Opacity at 5 mils WFT	ASTM D 2805	0.96	-
Bleed Ratio	ASTM D 969	0.95	-
Flexibility	ASTM D 522 Method B	Pass	-
Abrasion Resistance	971-4.3.2	Pass	-

971-4.3.1 Set To Bear Traffic Time: The material shall set to bear traffic in not more than two minutes.

971-4.3.2 Abrasion Resistance: Test four samples per LOT using a Taber Abrader. The paint shall be applied to specimen plates using a drawdown blade having a clearance of 26 mils. Air dry each sample for 30 minutes and bake at 220°F for 18 hours. Clean with a soft brush and weigh each sample. Abrade samples for 1,000 cycles with 1.1 lb weights and CS-10 wheels. Clean the samples with a soft brush and weigh again. The average weight loss for the four plates shall not exceed 0.178 oz per plate.

971-4.3.3 Retroreflectivity: The white and yellow pavement markings shall attain an initial retroreflectance of not less than 300 mcd/lx·m² and 250 mcd/lx·m², respectively. The retroreflectance of the white and yellow pavement markings at the end of the six month service life shall not be less than 150 mcd/lx·m².

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SUBARTICLE 971-8.3 (of the Supplemental Specification) is deleted and the following substituted:

971-8.3 Physical Requirements: The material shall meet the following criteria:

Property	Test Method	Minimum	Maximum
Adhesion to Concrete	ASTM D 4541, ASTM D 7234 or ACI 503	Concrete Failure	-
Hardness	ASTM D 2240	75	-
Abrasion Resistance	971-8.3.2	Pass	-

971-8.3.1 Set To Bear Traffic Time: The material shall set to bear traffic in not more than two minutes.

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SUBARTICLE 971-10.2 (of the Supplemental Specification) is deleted and the following substituted:

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TiO ₂ , Type II Ructile	ASTM D 476	10.0% minimum	N/A
Reflective Elements (intermix)	AASHTO T 250	% minimum per manufacturer	% minimum per manufacturer
Yellow Pigment		N/A	% minimum per manufacturer
Calcium Carbonate and Inert Filler (-200 mesh sieve)		% minimum per manufacturer	% minimum per manufacturer
Percentages are by weight.			